Gaby's Literature Review

The Adequate Intake for vitamin D, as established by the Institute of Medicine of the National Academy of Sciences, is 400 IU/day for adults aged 51-70, and 600 IU/day for people aged 71 and older. Vitamin D requirements tend to increase with advancing age, because the capacity of the skin to synthesize vitamin D decreases as people get older. In addition, many elderly people are housebound, and fail to obtain adequate amounts of sunlight to protect against vitamin D deficiency. The results of the present study suggest that 400 IU/day of vitamin D is insufficient for elderly people, and that a dose of 800 IU/day is more effective for fracture prevention. The Institute of Medicine has set the “safe upper limit” for vitamin D at 4,000 IU/day, but some research suggests that as much as 4,000 IU/day is safe for the average person.


High- or low-carbohydrate diet for obesity?

Twenty-one obese non-diabetic women (aged 23-53 years) were randomly assigned to consume for 16 weeks a low-calorie diet that was either 1) high in carbohydrate (60% of energy) and low in fat (20% of energy) (HC/LF) or 2) low in carbohydrate (40% of energy) and high in fat (40% of energy) (LC/HF). The women were classified as either insulin-sensitive (fasting insulin < 10 microU/ml; n = 12) or insulin-resistant (fasting insulin > 15 microU/ml; n = 9). Insulin-sensitive women on the HC/LF diet lost 13.5% of their initial body weight, whereas those on the LC/HF diet lost 6.8% (p < 0.002 for the difference in the change between groups). In contrast, among insulin-resistant women, those on the LC/HF diet lost a mean of 13.4% of their initial body weight, whereas those on the HC/LF diet lost 8.5% (p < 0.04 for the difference in the change between groups). These differences could not be explained by changes in resting metabolic rate, activity, or food intake. Overall, changes in insulin sensitivity were associated with the degree of weight loss (r = -0.57; p < 0.05).

Comment: The results of this study suggest that the ideal weight-loss diet for an obese woman depends on her state of insulin sensitivity. Women who are insulin-sensitive lose weight more rapidly with a high-carbohydrate diet than with a low-carbohydrate diet. In contrast, a low-carbohydrate diet is more effective for women who are insulin-resistant. In both groups of women, weight loss resulted in improved insulin sensitivity. Diets high in complex carbohydrates, which contain abundant amounts of plant foods, are generally more healthful than low-carbohydrate diets, which usually contain more animal foods. Obese insulin-resistant women might fare best with the HC/LF diet that loses the same amount of weight as the LC/HF diet.

The gallstone cure that wasn’t

A 40-year-old woman with multiple 1- to 2-mm gallstones documented by ultrasound underwent a “liver cleansing” regimen at the advice of an herbalist. The regimen consisted of free intake of apple and vegetable juice until 6 p.m., but no food, followed by consumption of 600 ml of olive oil and 300 ml of lemon juice over several hours. Early the next morning, multiple semi-solid green “stones” were passed per rectum. Analysis of the stones revealed that they contained no cholesterol, bilirubin, or calcium, but were made up of 75% fatty acids. Experimentation revealed that mixing equal volumes of oleic acid (the main component of olive oil) and lemon juice produced semi-solid white balls after the addition of a small amount of potassium hydroxide. The authors concluded that the green “stones” passed by this woman resulted from the action of gastric lipases on the triglycerides that make up olive oil, yielding long-chain carboxylic acids (mainly oleic acid). This process was followed by saponification into large insoluble micelles of potassium carboxylates (lemon juice contains a high concentration of potassium) or “soap stones.” The cholesterol stones observed on ultrasound were removed surgically.

Comment: Variations of the regimen described above are frequently mentioned by herbalists and nutritionists as a method of promoting the passage of gallstones. Some patients claim to have passed numerous gallstones after undergoing a “gallbladder flush” similar to this one. None of the patients, however, had their “stones” analyzed, and none had before- and-after gallbladder sonograms to document the passage of gallstones. Thus, it appears that most or all of these patients were merely passing “soap stones.” The gallbladder flush may not be entirely worthless, however; there is one case report in which treatment with olive oil and lemon juice resulted in the passage of numerous gallstones, as demonstrated by ultrasound examination (Br J Surg 1992;79:168).


Coenzyme Q10 to prevent migraines

Forty-two patients (mean age, 38.7 years) with recurrent migraines were randomly assigned to receive, in double-blind fashion, 100 mg of coenzyme Q10 (CoQ10) 3 times a day or a placebo for 4 months. The primary outcome measure was the change in attack frequency in month 4 compared with baseline. At baseline, the mean attack frequency in both groups was 4.4 per month. The proportion of patients who had a 50%-or-greater reduction in attack frequency in month 4 was 47.6% for CoQ10 and 14.4% for placebo. The mean reduction in attack frequency was 27.1% in the CoQ10 group and 2.1% in the placebo group (p < 0.05 for the difference in the change between groups). The mean duration and severity of migraines did not differ between groups. No significant side effects were reported.

Comment: Previous studies have demonstrated that migraine patients have impaired mitochondrial function, resulting in a reduction in energy production, in brain tissue. Nutrients essential for mitochondrial energy production include magnesium, riboflavin, niacinamide, and CoQ10. Controlled trials have demonstrated that supplementing with either magnesium or riboflavin can reduce the attack rate in migraine sufferers. Niacinamide has not been studied for migraine prophylaxis. While there is a single case report in which niacin reduced the recurrence rate of migraines (Mayo Clin Proc 2003;78:770-771), the effectiveness of niacin may have been due to its vasodilatory action, which is not shared by niacinamide. An earlier uncontrolled trial showed a beneficial effect of CoQ10, and those results have now been confirmed in this double-blind trial.
